

Conconully Safety of Dams Modification Project Draft Environmental Assessment

Socioeconomic Impact Analysis Memorandum

June 2025

Analysis Area

The socioeconomic analysis focuses on Okanogan County, Washington, where Conconully Dam is located. The analysis area was deemed appropriate based on the location of communities where workers would likely be drawn from and reside during the construction period (**Map 1-1** in **Appendix A** of the EA). The analysis area also includes communities that could be impacted by flooding in the event of dam failure (**Map 1** in the Public Health and Safety Memorandum).

Affected Environment¹

Population and Community

Between 2010 and 2022, Okanogan County experienced a population growth of 5.2 percent. This rate of increase is lower than the 17.2 percent population growth observed across Washington State during the same period (**Table 1**). Population projections from the Washington State Office of Financial Management (WSOFM) estimate that Okanogan County will see a 6 percent increase in population between 2020 and 2040 (WSOFM 2022) (**Table 2**). This would bring the county's population to approximately 44,660, up from 42,104 in 2020. In comparison, the state as a whole is expected to grow by 20 percent during this same period, with Washington's total population rising from 7,706,310 to 9,248,473. These projections provide important context for future planning, including considerations for infrastructure, public services, and employment needs associated with projects like the Conconully Safety of Dams Modification Project.

¹ Executive Order (EO) 14154, Unleashing American Energy (January 20, 2025), and a Presidential Memorandum, Ending Illegal Discrimination and Restoring Merit-Based Opportunity (January 21, 2025), require the Department of the Interior to strictly adhere to the National Environmental Policy Act (NEPA), 42 United States Code 4321 *et seq.* Further, the order and memorandum repeal EOs 12898 (February 11, 1994) and 14096 (April 21, 2023). Because EOs 12898 and 14096 have been repealed, complying with such orders is a legal impossibility. Reclamation verifies that it has complied with the requirements of NEPA, including the Department of the Interior's regulations and procedures implementing NEPA at 43 Code of Federal Regulations 46 and 516 of the Departmental Manual, consistent with the President's January 2025 order and memorandum.

Table 1. Analysis area population trends

	Okanogan County, WA	Washington
Population (2022)	42,336	7,688,549
Population (2010)	40,238	6,561,297
Population Change (2010–2022)	2,098	1,127,252
Population Change Percentage (2010–2022)	5.2	17.2

Source: Headwaters Economics 2022

Table 2. Population projections for Washington State and Okanogan County, 2020–2050

	WSOFM Adjusted Census	Population Projections					
Location	2020	2025	2030	2035	2040	2045	2050
Washington State	7,706,310	8,100,384	8,502,764	8,884,512	9,248,473	9,598,597	9,937,575
Okanogan County	42,104	42,897	43,676	44,256	44,660	44,932	45,101

Source: WSOFM 2022

The primary communities in the analysis area include the towns of Conconully, Omak, and Okanogan. Conconully, the closest to the dam, is a small town with a population of around 200, known for its rural setting and reliance on tourism and outdoor recreation. Omak, with a population of approximately 4,800, serves as a regional hub for retail, healthcare, and services, offering a larger labor force and more diverse economic activities. Okanogan, the county seat with a population of about 2,500, provides key government services and functions as a center for local governance and administration. These communities vary in terms of demographic characteristics, with Omak having a more diverse population, including a significant Native American presence due to its proximity to the Colville Reservation, while Conconully and Okanogan have predominantly white, older populations.

Public services in the analysis area include emergency response services such as fire, police, and medical services, which are primarily based in Omak and Okanogan. Conconully, due to its small size, depends on nearby larger towns for many services, especially in cases of emergencies requiring more substantial resources. The capacity of these services is an important factor in considering potential impacts of construction and any emergency scenarios related to Conconully Dam, such as flooding or dam failure, which could place additional demands on local resources.

Table 3 shows Tribal population data in Okanogan County. The table shows that the county has a higher percentage of Tribal populations than the Washington State average. For more information on Tribal groups in the area, reference **Section 3.5** of the EA.

Table 3. Tribal populations in Washington State and Okanogan County, 2022

Geographic Area	Total Population	Tribal Populations	Tribal Population Percentage
Washington	7,688,549	245,633	3.2
Okanogan County	42,336	5,569	13.2

Source: U.S. Census Bureau 2022

Jobs and Income

The employment data for North American Industry Classification System (NAICS) industries displayed in **Table 4** show that Okanogan County had a total of 23,675 jobs in 2022, with 17,594 jobs being wage and salary positions and 6,081 categorized as proprietor employment. Okanogan County's reliance on farm employment (3,418 jobs) and government employment (5,108 jobs) highlights its rural nature. In contrast, the state as a whole is more balanced between industries like manufacturing, trade, and professional services. This suggests that construction activities associated with the Conconully Safety of Dams Modification Project could have a meaningful impact on Okanogan County's job market, particularly in the construction sector, which employed only 1,157 people in 2022.

Table 4. Total full-time and part-time employment by NAICS industry in Okanogan County, 2022

Category	Number of Jobs
Total employment	23,675
By type	–
Wage and salary employment	17,594
Proprietors' employment	6,081
Farm proprietors' employment	1,241
Nonfarm proprietors' employment 2	4,840
By industry	–
Farm employment	3,418
Nonfarm employment	20,257
Private nonfarm employment	15,149
Forestry, fishing, and related activities	(D)
Mining, quarrying, and oil and gas extraction	(D)
Utilities	45
Construction	1,157
Manufacturing	640
Wholesale trade	290
Retail trade	2,488
Transportation and warehousing	501
Information	201
Finance and insurance	563
Real estate and rental and leasing	959
Professional, scientific, and technical services	(D)
Management of companies and enterprises	(D)
Administrative and support and waste management and remediation services	534

Category	Number of Jobs
Educational services	207
Health care and social assistance	1,930
Arts, entertainment, and recreation	478
Accommodation and food services	1,404
Other services (except government and government enterprises)	1,020
Government and government enterprises	5,108
Federal civilian	404
Military	93
State and local	4,611
State government	322
Local government	4,289

Source: BEA 2022b

(D) typically denotes data has been suppressed to avoid the disclosure of confidential information.

In **Table 5**, which presents income data for 2022, Okanogan County's total earnings amounted to approximately \$1.17 billion, with farm earnings contributing \$87 million and nonfarm earnings making up \$1.09 billion. The county's significant earnings in sectors such as retail trade (\$102.97 million), health care (\$107.1 million), and construction (\$70.5 million) reflect the importance of these industries locally.

Table 5. Personal income by NAICS industry in Okanogan County, 2022

Category	Earnings (Thousands of \$)
Farm	87,036
Nonfarm	1,090,269
Private nonfarm	676,930
Forestry, fishing, and related activities	(D)
Mining, quarrying, and oil and gas extraction	(D)
Utilities	3,804
Construction	70,514
Manufacturing	27,601
Wholesale trade	13,962
Retail trade	102,973
Transportation and warehousing	27,763
Information	10,821
Finance and insurance	15,745
Real estate and rental and leasing	29,634
Professional, scientific, and technical services	(D)
Management of companies and enterprises	(D)
Administrative and support and waste management and remediation services	18,322
Educational services	5,383
Health care and social assistance	107,103
Arts, entertainment, and recreation	20,796
Accommodation and food services	52,051

Category	Earnings (Thousands of \$)
Other services (except government and government enterprises)	40,109
Government and government enterprises	413,339

Source: BEA 2022a

(D) typically denotes data has been suppressed to avoid the disclosure of confidential information.

Table 6 illustrates unemployment trends from 2019 to 2023. Okanogan County had a 2023 unemployment rate of 5.5 percent, a decrease over the 5-year period from 6.7 percent in 2019. In comparison, Washington State’s unemployment rate in 2023 was 4.1 percent, a lower rate than Okanogan County’s but reflective of broader economic recovery trends following the COVID-19 pandemic. The higher unemployment in Okanogan County suggests that the area may have fewer employment opportunities and be more vulnerable to economic fluctuations than the state overall.

Table 6. Annual unemployment, 2019–2023

	Annual 2019	Annual 2020	Annual 2021	Annual 2022	Annual 2023
Okanogan County Unemployment Rate	6.7	8.9	6.7	6.1	5.5
Okanogan County Unemployment	1,398	1,733	1,275	1,186	1,072
Washington State Unemployment Rate	4.2	8.5	5.2	4.1	4.1
Washington State Unemployment	166,881	331,195	202,040	163,119	164,879

Source: BLS 2023

Social and Economic Benefits provided by Conconully Dam

Reclamation identified the key economic benefits of Conconully Dam as irrigation, recreation, and nonmarket values (such as, fish and wildlife). Details are provided below for benefits that could be impacted by project activity.

Irrigation

Conconully Dam supports local agriculture by providing irrigation water to approximately 5,032 acres, delivering an average of 18,190 acre-feet annually. The economic contribution of this irrigation is substantial, with net farm returns per acre estimated at \$3,892 for apples and -\$166 for irrigated pasture, compared with -\$233 per acre for dryland pasture. These figures illustrate the economic importance of irrigation in maintaining farm viability and supporting agricultural revenue. The dam’s role in irrigation is essential to farm income and the stability of the agricultural sector (Reclamation 2022).

Recreation

Between 2016-2020, Conconully Reservoir and Conconully State Park received an annual average of 110,449 visitor days (one calendar day during which a person visits Reclamation facilities, services, or recreation areas), including 95,391 day-use visits and 15,058 overnight camping visits (Reclamation 2022). These visitors contribute to the local economy through recreation-related expenditures, such

as lodging, food, retail purchases, and equipment rentals. The median recreation value per visitor day varies by activity, with freshwater fishing generating \$75.21 per visitor, nonmotorized boating \$91.76 per visitor, and general day-use recreation \$48.60 per visitor (Reclamation 2024). Fluctuating water levels can influence recreation patterns, affecting local businesses and park operations. For additional details on activities, see **Section 3.8** of the EA.

Nonmarket Values

Public lands and natural resources provide a range of goods and services that benefit society in various ways. Some of these goods and services, such as timber and minerals, are bought and sold in markets and have readily observed market values. Others have a less direct connection to market activity but still provide meaningful benefits to society. In some cases, goods and services have both market and nonmarket values.

A key aspect of nonmarket values in the analysis area involves the presence of special status species, particularly fish species listed under the Endangered Species Act. Additional information on special status species, including federally-listed fish (**Section 3.3** of the EA). Special status species contribute to ecosystem health and biodiversity, and their conservation holds ecological, cultural, and recreational importance. Many people derive value from the protection and recovery of special status species, whether through direct experiences such as fishing and wildlife viewing or through the intrinsic satisfaction of knowing they persist in their natural habitats. The latter is often referred to as a “passive use value.”² Passive use value acknowledges that people derive value from resources beyond active uses (Krutilla 1967). Passive use value can be further classified into three categories: (1) existence value, (2) option value, and (3) bequest value. Existence value is the value derived from knowing that something exists, even if one never plans to visit or see it. Option value is the value of maintaining the option to visit or see something sometime in the future. Finally, bequest value is the value of passing on something to future generations (Weisbrod 1964).

Studies conducted on salmonid species in the Pacific Northwest support the passive use value, as measured by surveys of participants’ willingness to pay for population maintenance or increase. For example, a 10 percent increase in the populations of both migratory species (steelhead and Chinook salmon) has an estimated worth of \$736 million a year to Washington households (Layton et al. 1999).

Environmental Consequences

Methods and Criteria

Analysis Indicators

- Jobs and income
- Irrigation economic contributions

² This term was adopted by the United States (U.S.) Court of Appeals for the District of Columbia Circuit in their 1989 decision in *Ohio v. U.S. Department of the Interior*.

- Recreation economic contributions
- Flood risk and associated economic impacts
- Nonmarket value

Assumptions

- No assumptions for socioeconomics have been identified at this time.

Alternative A – No Action

Under the No Action alternative, current socioeconomic conditions would persist without the proposed safety improvements. There would be no construction-related spending or employment, maintaining the status quo for jobs and income in Okanogan County. Irrigation benefits would continue at current levels, though the risk of dam failure would remain, potentially disrupting irrigation in the event of a breach, with an estimated annual loss to net irrigation benefits of approximately \$11.3 million annually in the event of dam failure (Reclamation 2022).

Recreation-related economic activity would also remain unchanged, with visitor spending at campgrounds, resorts, and local businesses continuing at current levels. However, without dam safety improvements, the risk of dam failure could result in permanent disruptions to recreation and associated economic activity. Dam failure could impact businesses such as Shady Pines Resort and Liar's Cove Resort, as well as local tourism-related industries that depend on stable reservoir conditions by reducing access to reservoir recreation sites. Additional details on recreational opportunities, access, and quality are provided in **Section 3.8** of the EA.

Flood risk would remain a significant concern under this alternative, with the potential for major economic losses in the event of dam failure. The cities of Omak and Okanogan, located downriver from Conconully Dam, are within the potential inundation zone and could experience widespread flooding, impacting homes, businesses, and public infrastructure. Flooding from dam failure can result in substantial economic damages, including property losses, business disruptions, and increased demand for emergency response services. Studies by the Federal Emergency Management Agency and U.S. Army Corps of Engineers have shown that severe floods can lead to billions in damages, permanent economic displacement, and infrastructure failures (FEMA 2012; USACE 2021). Additional details on flood risk and inundation zones are provided in the Public Health and Safety Memorandum.

Nonmarket values, particularly those related to federally-listed steelhead, would continue to be supported by the habitat downstream of the dam. However, the risk of habitat degradation from a potential dam failure remains. Over time, without dam safety improvements, economic risks could increase as infrastructure ages and potential flood risks grow. For further details on the impacts on federally-listed species and habitat, please refer to **Section 3.3** of the EA.

Under the No Action alternative, the Salmon Creek River Mile 8 Restoration Project, which aims to restore fish habitat and improve migratory passage, could still contribute to ecological improvements in the region. This project, scheduled for implementation in 2026 or 2027, could help enhance fish

habitat and water quality, though the absence of dam improvements under the No Action alternative may limit the potential for full habitat restoration and permanent ecological benefits.

Alternative B – Proposed Action

Compared with the No Action alternative, Alternative B would generate economic benefits during the construction phase, including temporary job creation and increased local spending, particularly in the construction sector over the estimated 4-year construction period. According to the Conconully Economic Benefits and Damages Report (Reclamation 2024), Alternative B would require approximately \$156.1 million in expenditures for construction materials, equipment, and labor over a 3-year period, contributing to economic activity in the region. Spending on project construction could lead to additional induced spending in the local economy, as it would stimulate demand for local goods and services and create jobs. This ripple effect would boost overall economic activity and benefit the community. These expenditures and the associated employment would provide temporary and short-term economic benefits to the local economy through wages, contractor spending, and increased demand for goods and services. Project benefits provided by Conconully Dam and Reservoir are approximately \$16.3 million yearly (in 2021 dollars).

Recreation-related businesses may experience temporary economic disruptions during the 4-year construction period due to noise, traffic, and changes to the visual setting (refer to **Section 3.6 and 3.7** in the EA and the Transportation Memorandum, for further information on temporary disruptions). Visitor spending at nearby resorts and campgrounds could decline if visitors choose to recreate elsewhere to avoid construction-related disturbances. However, permanent recreation-related economic activity could increase due to infrastructure improvements. The addition of a new boat ramp would provide an additional launch point for motorized and nonmotorized watercraft, potentially increasing visitor use and spending. Restoration of the borrow area could also contribute to future recreation opportunities and associated economic benefits by transforming the area into a usable space for activities such as additional parking, picnic areas, or improved access to the reservoir.

Alternative B would reduce the risk of dam failure as compared with the No Action alternative, thereby decreasing the likelihood of economic losses from flood damage. For additional information, refer to the Public Health and Safety Memorandum.

Construction activities, particularly at the outlet works, could have temporary impacts on federally-listed steelhead, including unwatering and potential fish relocation—effects that would not occur under the No Action alternative. However, these impacts would be reduced through aquatic and wetland habitat restoration activities downstream of the dam (**Appendix G** of the EA) in the short-term. When considered alongside other regional habitat conservation efforts, these actions could contribute to permanent improvements in fish habitat and ecological conditions. These changes to habitat quality may result in fluctuations in the nonmarket value associated with the preservation of steelhead, with potential short-term reductions and permanent benefits as described in the Affected Environment section. Further details on potential impacts on steelhead and their habitat are provided in **Section 3.3** of the EA.

Reasonably foreseeable future actions, such as the Salmon Creek River Mile 8 Restoration Project, which aims to restore fish habitat, improve migratory passage, and enhance water retention, could contribute to improvements in regional ecological conditions. This project, located north of the current project area and slated for implementation in 2026 or 2027, could complement habitat restoration efforts associated with the Conconully Dam project, further benefiting fish species and habitat quality over time.

Alternative C

Alternative C would have construction-related economic benefits similar to those under Alternative B, with temporary job creation and spending boosts to the local economy that would not occur under the No Action alternative.

Recreation impacts under Alternative C would be similar to those under Alternative B, with temporary disruptions due to construction. However, Alternative C would not include a new boat ramp, which would reduce permanent recreation benefits compared with Alternative B. The restoration of the borrow area would still enhance recreation potential by transforming the area into a usable space for activities such as picnic areas, but the absence of a new launch site may limit future increases in visitor spending.

The socioeconomic impacts of Alternative C from reduced flood risk, continued irrigation and recreation benefits, and short-term construction-related impacts to federally-listed steelhead would be the same as those described under Alternative B.

Acronyms

EA	environmental assessment
EO	Executive Order
NAICS	North American Industry Classification System
NEPA	National Environmental Policy Act
Reclamation	Bureau of Reclamation
U.S.	United States
WSOFM	Washington State Office of Financial Management

References

- BEA (U.S. Department of Commerce, Bureau of Economic Analysis). 2022a. Regional Data: CAINC5N. Internet website: <https://apps.bea.gov/itable/?ReqID=70&step=1>.
- _____. 2022b. Regional Data: CAEMP25N. Internet website: <https://apps.bea.gov/itable/?ReqID=70&step=1>.
- BLS (U.S. Bureau of Labor Statistics). 2023. Local Area Unemployment Statistics (LAUS). Internet website: <https://data.bls.gov/multi-screen?survey=la>.
- FEMA (Federal Emergency Management Agency). 2012. Assessing the Consequences of Dam Failure. Internet website: <https://damsafety.org/sites/default/files/files/FEMA%20TM%20AssessingtheConsequencesofDamFailure%20March2012.pdf>.
- Headwaters Economics. 2022. Economic Profile System: Okanogan County, WA. Internet website: <https://headwaterseconomics.org/apps/economic-profile-system/53047>.
- Krutilla, J. V. (1967). Conservation Reconsidered. *The American Economic Review*, 57(4), 777–786. Internet website: <http://www.jstor.org/stable/1815368>.
- Layton, D. F., G. M. Brown, and M. L. Plummer. 1999. "Valuing multiple programs to improve fish populations." *Research Papers in Economics* April 1999.
- Reclamation (U.S. Bureau of Reclamation). 2022. Conconully Appraisal Economic Benefits Report. Washington, DC.
- _____. 2024. Conconully Economic Benefits and Damages Report. Washington, DC.
- USACE (U.S. Army Corps of Engineers). 2021. Dam Safety Facts and Figures. Internet website: <https://www.usace.army.mil/Media/Fact-Sheets/Fact-Sheets-View/Article/2523036/dam-safety-facts-and-figures/>.
- U.S. Census Bureau. 2022. *American Community Survey 5-year estimates: Demographic and housing characteristics (DP05)*. U.S. Department of Commerce. Internet website: <https://data.census.gov/table/ACSDP5Y2023.DP05>.

Weisbrod, B. A. (1964). *Collective-consumption services of individual-consumption goods*. The Quarterly Journal of Economics, 78(3), 471–477.

WSOFM (Washington State Office of Financial Management). 2022. Growth Management Act Population Projections for Counties: 2020 to 2050, 2022 Projections. Internet website: <https://ofm.wa.gov/washington-data-research/population-demographics/population-forecasts-and-projections/growth-management-act-county-projections/growth-management-act-population-projections-counties-2020-2050>.

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